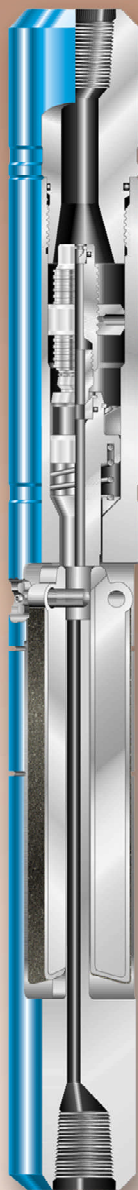


PRESSURE PIPE CUTTER

Instruction Manual 5680



Pressure Pipe Cutter

Pressure Pipe Cutter

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The designs and specifications for the tools described in this instruction manual were in effect at the time this manual was approved for printing. National Oilwell Varco, whose policy is one of continuous improvement, reserves the right to discontinue models at any time, or to change designs and specifications without notice or without incurring obligation.

Fifth Printing, September 2005

General Description

The **Bowen Pressure Pipe Cutter** is designed to cut single and multiple strings of pipe from 4" O.D. to 36" O.D., using pump pressure to actuate three (3) Itcoloy coated Knives. Different lengths of Knives are used, depending on the size of pipe to be cut. The Cutter works on the principle of flow restriction across an orifice while cutting, and pressure drop when the pre-set diameter of the Knives is reached. This tells the operator that the pipe has been severed.

Operation

A drill bit is attached to the bottom of the Cutter for stabilizing purposes, if desired, and the Cutter is then attached to the Drill Pipe or Tubing. Use bailing wire in the O.D. grooves provided on the Body to keep the Knives in a closed position while the Cutter is lowered to the desired depth. Begin rotation **before** mud pump is turned on.

The continued downward movement of the Piston reacting to the pump pressure forces the Knives to pivot about their pins. When the Knives reach their pre-set diameter, the Piston will separate from the Bit Jet Retainer Stem, causing an increase in mud flow through the tool. This, in turn will cause a decrease in pump pressure, indicating the Knives have severed the pipe.

Complete Disassembly

Refer to page 4 for proper location of parts.

National Oilwell recommends an assembly drawing of the size Pressure Pipe Cutter being serviced be available when disassembling and reassembling.

Secure the Bowen Pressure Pipe Cutter in an appropriate vise on the Body just above the Knives. Using a pipe wrench and V-Belt Pulley Assembly, break Top Sub connection and remove Top Sub. Using a screwdriver, remove Top Sub O-Ring.

After the Top Sub is removed, reach inside the Body and remove Valve Assembly. The Valve Assembly consists mainly of Bit Jet, Bit Jet Retainer, Bit Jet Retainer Stem and Stop Spider. Lay Valve Assembly on clean shop table. Using retainer ring pliers, remove retainer ring from Bit Jet Retainer. Insert drill rod or brass bar through Bit Jet Retainer Stem and remove Bit Jet by tapping it out. Remove I.D. O-Ring from Bit Jet Retainer.

Remove three (3) set screws from Stop Spider. Remove Bit Jet Retainer Stem from Bit Jet Retainer. Remove Bit Jet Retainer from Stop Spider. Next, remove the three (3) Knives from Body by first, removing the three (3) retaining screws at the head of each knife pin. Using a screwdriver or metal punch, remove the three (3) Knife Pins. Remove Knives from Body.

Insert pipe or brass bar into one of the Knife grooves on Body and tap out Piston. Remove Piston Spring from Body also. Lay Piston on clean shop table and remove Piston I.D. Retainer Ring with retainer ring pliers. Remove Piston Bushing with a screwdriver and also the I.D. O-Ring inside Piston Bushing bore. Secure Piston in a bench vise on small diameter using soft jaws (brass or copper).

NOTE: Do not score or mark any O.D. surface on piston.

With a screwdriver, remove O.D. seal Retainer Ring, Plate and O.D. seal (on 35/8" O.D. and 59/16" O.D. tools, Piston O.D. seal consists of an O-Ring only). The Bowen Pressure Pipe Cutter is now completely disassembled.

Carefully clean and inspect all parts for wear and damage. Replace all worn and damaged parts with new parts.

Complete Reassembly and Knife Cutting Diameter Adjustment

Refer to page 4 for proper location of parts.

National Oilwell recommends an assembly drawing of the size Pressure Pipe Cutter being serviced be available when disassembling and reassembling.

The Bowen Pressure Pipe Cutter is easy to reassemble. The Body is dressed with the appropriate length of Knives, Knife Pins and set screws. The Knives are inserted into the three (3) Knife slots with the Itcoloy surfaces facing outward and holes in Knives and Body aligned. The Knife Pins are inserted into each of the through drilled holes on the Body. With the head of the Knife Pin inserted into the slot on the Body, the three (3) retaining screws are then installed to hold the Knife Pin in place. The Knives are then checked, assuring they hinge freely.

The Piston O.D. Seal is fitted, then Plate and Retainer Ring installed, (install appropriate Piston O.D. O-Ring on 35/8" and 59/16" O.D. tools). Install Piston I.D. O-Ring inside Piston bore and insert Piston Bushing until it rests on the shoulder of the Piston. The Retainer Ring is inserted in the groove, locking the Piston Bushing into the I.D. of the Piston. The Piston Assembly is inserted into the Body until it touches the Knives.

NOTE: Piston spring is not installed at this time.

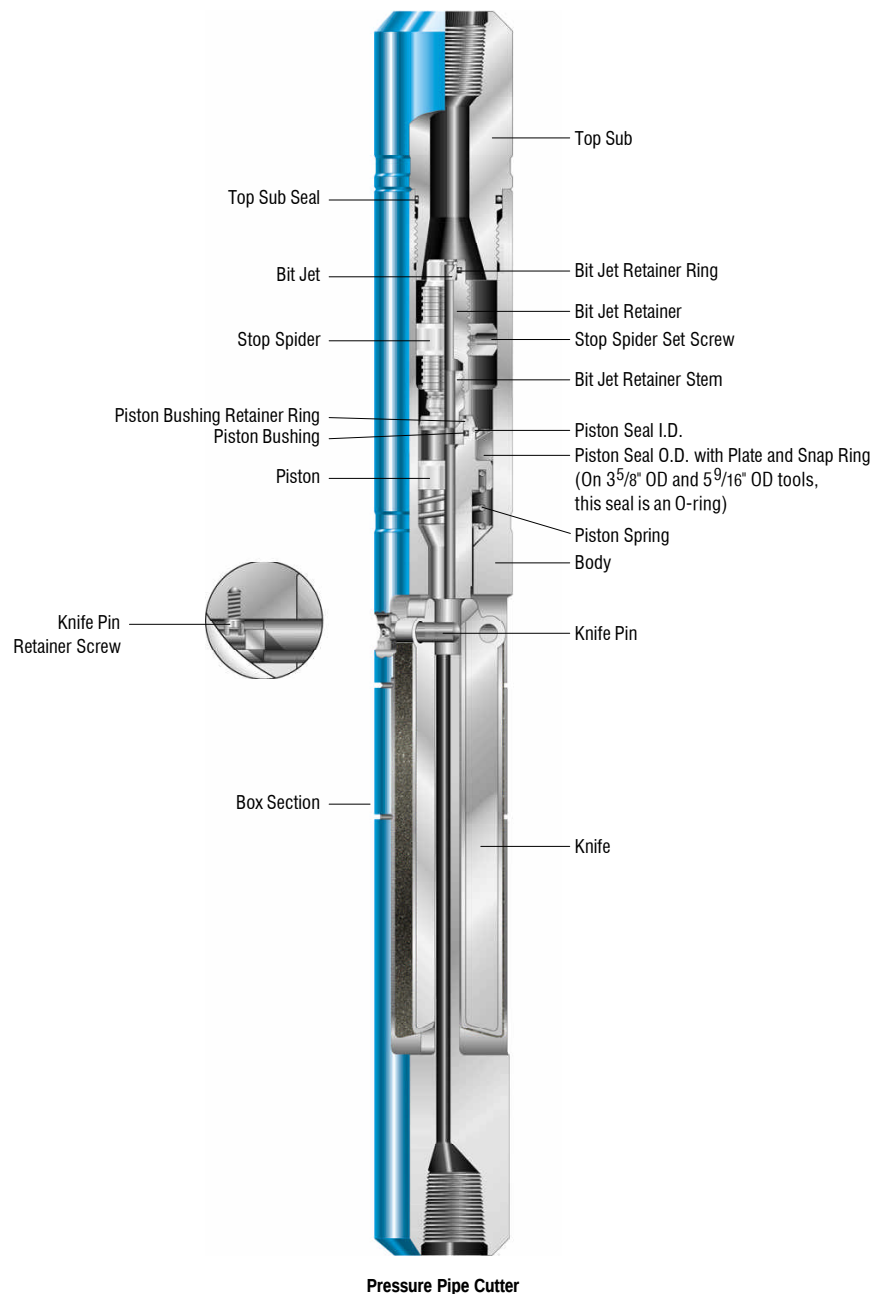
The Bit Jet Retainer Stem is screwed and tightened securely to the Bit Jet Retainer. Next, install I.D. O-Ring inside the Bit Jet Retainer, followed by the Bit Jet and Retainer Ring in that order. The Stop Spider is then threaded onto the Bit Jet Retainer.

At this point, Knife cutting diameter should be pre-set before completing reassembly. As stated earlier, the correct length of Knives are chosen depending on the O.D. of pipe to be cut. Consult pages 9 and 10 for this information. Extend one (1) of the Knives to maximum diameter desired and with a tape, measure the distance from tip of Knife to center of tool. With Knife held in this position, insert Valve Assembly into Body and push down on Piston until it touches the top of the extended Knife. Adjust the Stop Spider so that it comes to rest on the shoulder in the upper end of the Body. The Bit Jet Retainer Stem with its ground surface should come to rest on the ground seat of the Piston Bushing at the same time. Remove the Valve Assembly from the Body and align set screw holes on Stop Spider with three (3) flats on the Bit Jet Retainer. Install three (3) set screws and tighten securely. Remove Piston Assembly from Body and install Piston Spring. The Piston Assembly is then reinstalled into the Body until it comes to rest on the Piston Spring. Install Valve Assembly inside Body. Fit Top Sub with O-Ring and thread Top Sub to Body. Wrap wire around the Body in the groove over the Knife slots in order to keep the Knives in the closed position as the tool is lowered into the casing.

The Bowen Pressure Pipe Cutter is now ready for use.

Maintenance

The Bowen Pressure Pipe Cutter should be thoroughly washed and cleaned to remove all drilling mud and other debris. All parts, particularly the Knives, should be examined for wear and damage and replaced as necessary. It is recommended that the Bowen Pressure Pipe Cutter be completely disassembled, cleaned, lubricated, painted, and reassembled before storing.



Single Cut Operation from a Fixed Platform

NOTE: See tables on pages 9 and 10 for proper cutting sequence rpm and mud pump pressure.

Make-Up

To make a successful cut using the Bowen Pressure Pipe Cutter, first, determine proper Knife length for pipe to be cut and dress Pipe Cutter accordingly. (Directions for adjusting cutting diameter of Knives can be found in Pressure Pipe Cutter Assembly Instructions.) Second, set correct R.P.M. of rotary table. Third, select mud pump pressure necessary for cut.

By running a drill bit or stabilizer in the bottom of the Cutter and a stabilizer directly above the Cutter, a smoother and more efficient cut can be achieved. In extreme cases cut may not be made without a stabilizer.

Cutting Procedure

Before starting the actual cut, be sure Knives are not located at a casing coupling location. This will only complicate and prolong the cut. Once the tool is in cutting position, mark the kelly so that Knives can be relocated if needed.

After Knife location has been established, begin the cutting operation by starting the rotary and achieving recommended rpm. Zero weight indicator and note free torque of cutter string. Start mud pump and increase pressure as recommended in the tables on pages 9 and 10. Continue cutting until Knives reach the pre-set diameter, which will be indicated by a sharp drop in pump pressure. After the pipe is cut, release pump pressure and simply raise the string to remove the Cutter from the hole.

Single Cut Operation from a Floating Platform

To cut pipe from a floating platform, follow the same make-up procedure as that from a fixed platform.

In addition, an underwater swivel is needed with a Bumper Sub to prevent wave motion from affecting the position of the Pipe Cutter. The swivel should be allowed to seat in the subsea wellhead system at the proper distance from the Pipe Cutter. Lower the string one half the stroke of the Bumper Sub and mark the kelly for possible relocation of the Bumper Sub assuring the underwater swivel is not disturbed and remains seated on the well head or riser.

Start the rotary, achieve recommended rpm, zero weight indicator, and note free torque of Cutter String. Start mud pump and increase pressure to that as recommended in the tables on pages 9 and 10. Continue cutting until Knives reach their pre-set diameter, which will be indicated by a sharp drop in pump pressure. After completing cut, release pump pressure and raise the string to remove the Cutter.

Multiple Cut Operation from a Fixed Platform

NOTE: See table on page 11 for cutting sequence.

Multiple cuts using the Bowen Pressure Pipe Cutter can be made efficiently by following the guidelines, determining Knife length, run sequence, rotary speed and pump pressure. A drill bit should be attached to the bottom of the Cutter, if desired, and a stabilizer connected directly above the Cutter to insure a smooth cut. Successive trips may require changing of the drill bit and modification of the stabilizer to accommodate the larger casing I.D. if casing is pulled after a run.

Before making initial cut, be sure Knives are not located at a casing coupling location. Lower the Cutter and mark the Kelly so that Knives can be repositioned in the right location for successive cuts.

Cutting Operation

First Run: To begin the first cut, start rotation and bring mud pump up to recommended pressure, as shown in the tables on pages 9 and 10. Run the Cutter until the Knives reach their pre-set diameter (directions for setting Knife cutting diameter can be found in Pipe Cutter Assembly Instructions). The drop in mud pump pressure indicates to the operator that this diameter has been reached. Stop pump pressure and remove the Cutter from the hole.

Second Run: Dress the Cutter with the appropriate length of Knives needed for the second run and measure the difference in length of Knives. Raise the Kelly to compensate for the difference, assuring the longer Knives will clear the bottom of the cut. Start rotary and increase mud pump pressure to setting recommended in chart. Continue to cut until Knives reach their preset diameter which will be indicated by a pressure drop. Stop pressure and trip out of the hole.

This procedure should be followed until all sizes of pipe have been cut.

Multiple Cut Operation from a Floating Platform

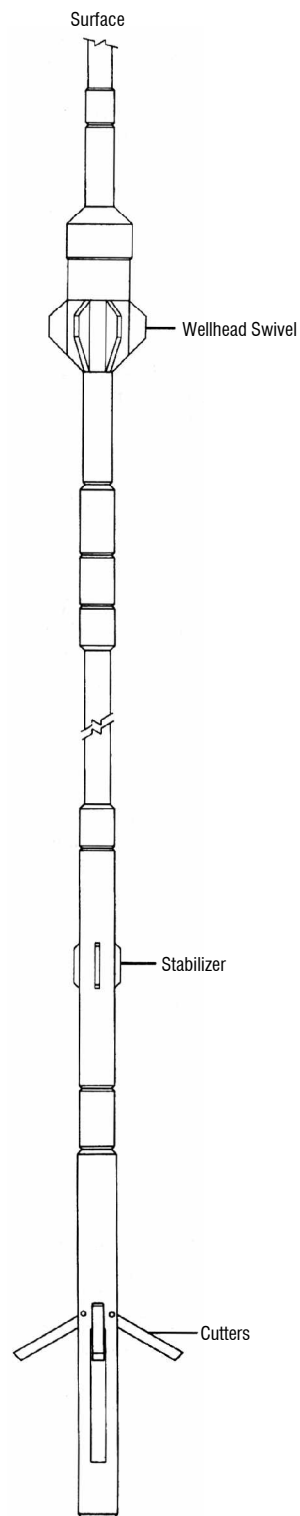
Multiple sizes of pipe can be cut from a floating platform using the underwater swivel added to the Cutter string.

See figure at right for typical set up from a floating platform.

An underwater swivel must be added to the Cutter string along with a Bumper Sub with the latter being used to offset wave motion and to keep the Pipe Cutter stable while cutting the pipe.

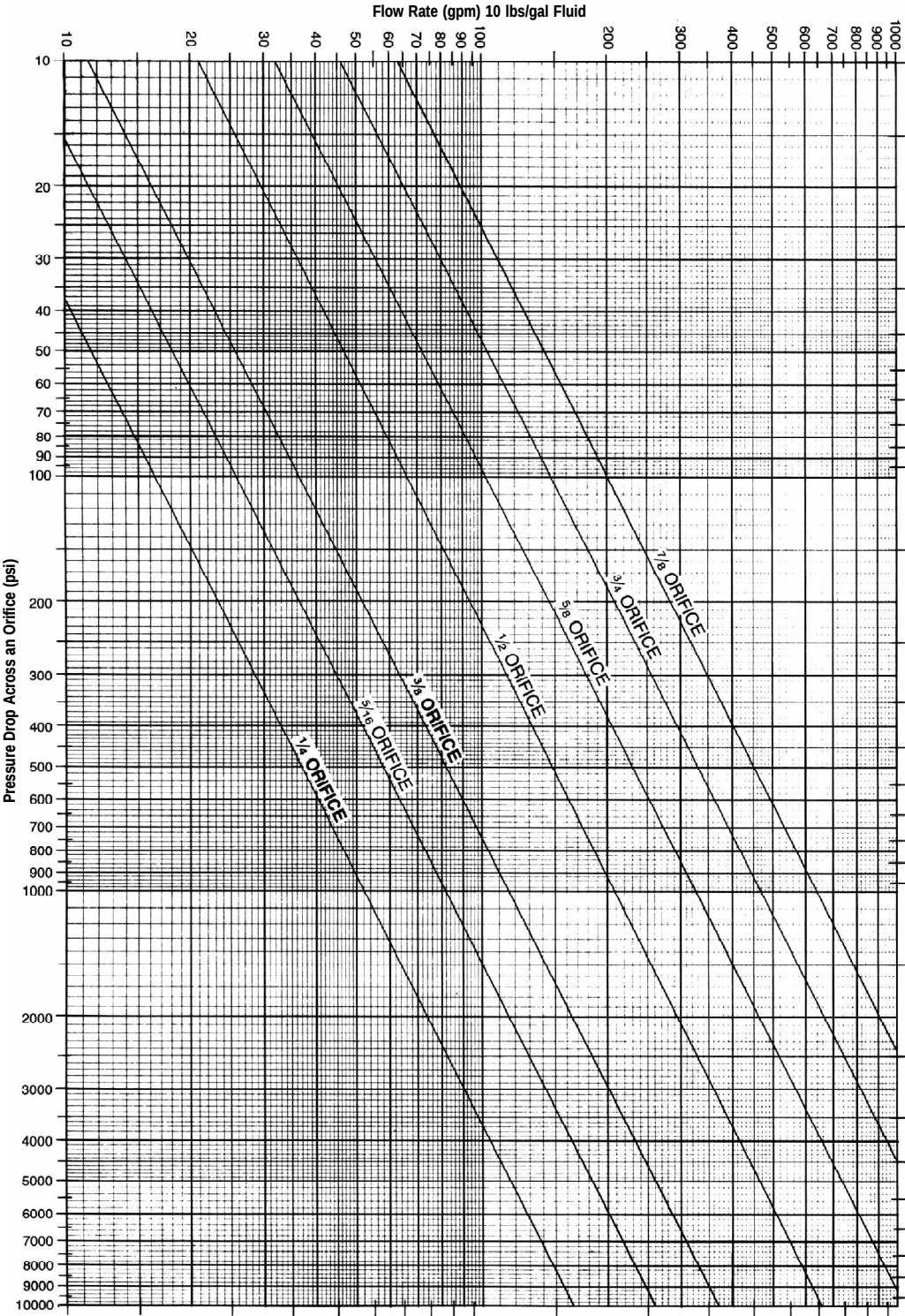
The swivel should be landed on the subsea well head or riser. Spacer Subs should be located between the swivel and Stabilizer. The string should be lowered half the stroke of the Bumper Sub. Mark the Kelly, start the rotary, note free torque and increase pump pressure to recommended level. Continue cut until Knives are fully extended, which will be indicated by a pressure drop. Stop pressure and remove the Cutter from the hole.

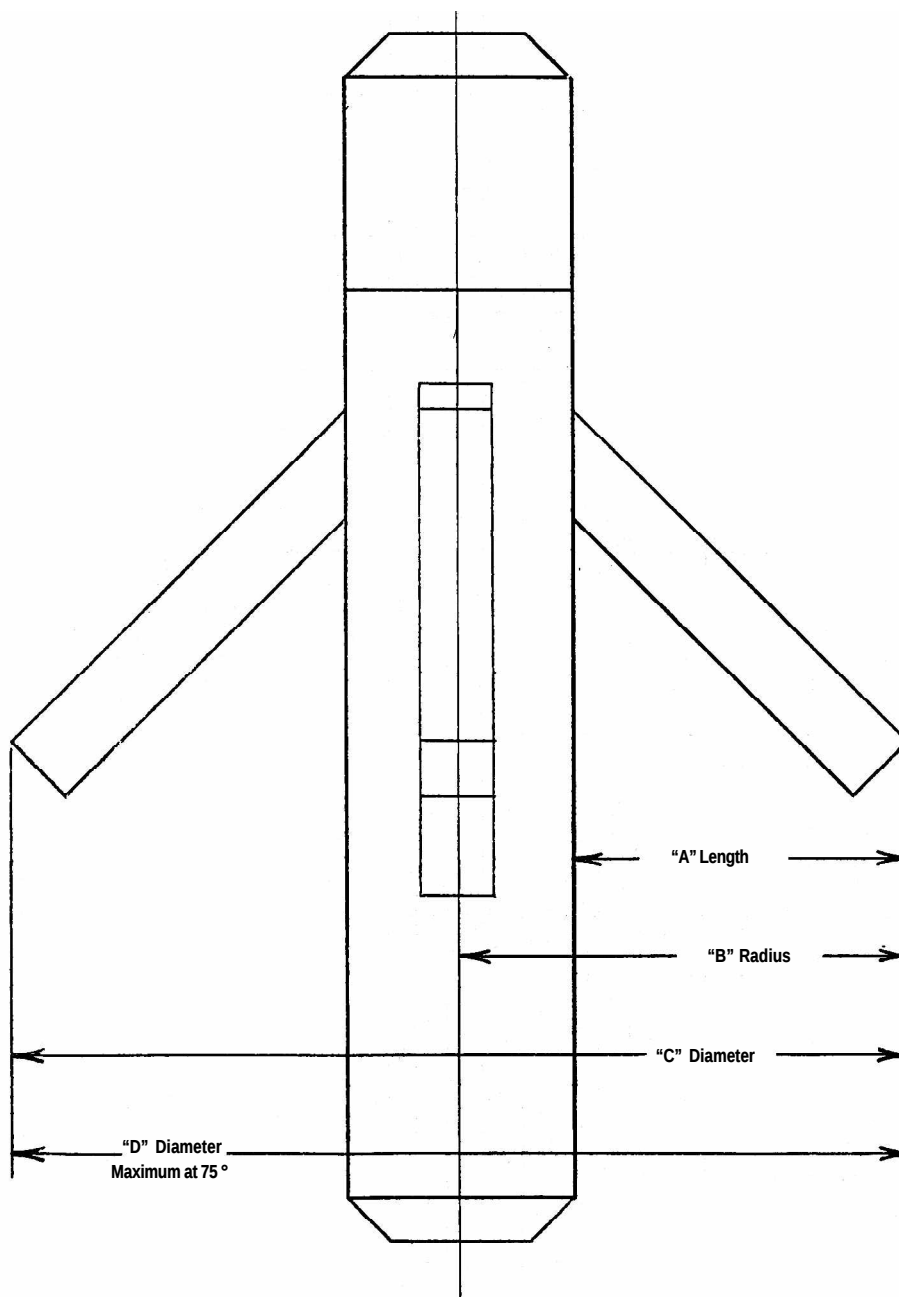
Refer to the run chart on page 11 for all information required for additional trips into the hole.



Typical Set Up from Floating Platform

Pressure Drop Across an Orifice





Single Cut Operation Running Chart

3-1/4" (83 mm) O.D. Pressure Pipe Cutter

Casing or Pipe Size	Knife					Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
	Part No.	"A" Length	"B" Radius	"C" Diameter	"D" Max. Diameter @ 75°*			
4 O.D. Pipe	150446	.625 (16 mm)	2-1/4 (57 mm)	4-1/2 (114 mm)	5-3/8 (136 mm)	80	180 psi (13 Kg/cm ²)	1/4

3-5/8" (92 mm) O.D. Pressure Pipe Cutter

Casing or Pipe Size	Knife					Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
	Part No.	"A" Length*	"B" Radius*	"C" Diameter*	"D" Max. Diameter @ 75°*			
4-1/2 (114 mm)	80357	9/16 (14 mm)	2-3/8 (60 mm)	4-3/4 (121 mm)	6-1/2 (165 mm)	80	180 psi (13 kg/cm ²)	1/4
5 (127 mm)	80357	13/16 (21 mm)	2-5/8 (67 mm)	5-1/2 (133 mm)	6-1/2 (165 mm)	80	180 psi (13 kg/cm ²)	
5-1/2 (140 mm)	80357	11/16 (27 mm)	2-7/8 (73 mm)	5-3/4 (146 mm)	6-1/2 (165 mm)	80	240 psi (17 kg/cm ²)	
6 (152 mm)	80357	15/16 (33 mm)	3-1/8 (79 mm)	6-1/4 (159 mm)	6-1/2 (165 mm)	80	240 psi (17 kg/cm ²)	

5-9/16" (141 mm) O.D. Pressure Pipe Cutter

Casing or Pipe Size	Knife					Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
	Part No.	"A" Length*	"B" Radius*	"C" Diameter*	"D" Max. Diameter @ 75°*			
6-5/8 (168 mm)	80717	5/8 (17 mm)	3-7/16 (87 mm)	6-7/8 (175 mm)	8-3/4 (222 mm)	80	750 psi (53 kg/cm ²)	1/4
7 (178 mm)	80717	13/16 (21 mm)	3-5/8 (92 mm)	7-1/4 (184 mm)	8-3/4 (222 mm)	80	750 psi (53 kg/cm ²)	
7-5/8 (194 mm)	81896	1-1/8 (29 mm)	3-15/16 (100 mm)	7-7/8 (200 mm)	10-1/2 (267 mm)	70	800 psi (56 kg/cm ²)	
8-5/8 (219 mm)	81896	1-5/8 (42 mm)	4-7/16 (113 mm)	8-7/8 (225 mm)	10-1/2 (267 mm)	60	900 psi (63 kg/cm ²)	
9-5/8 (244 mm)	81896	2-1/8 (55 mm)	4-15/16 (125 mm)	9-7/8 (251 mm)	10-1/2 (267 mm)	60	900 psi (63 kg/cm ²)	

7-3/8" (187 mm) O.D. Pressure Pipe Cutter

Casing or Pipe Size	Knife					Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
	Part No.	"A" Length	"B" Radius	"C" Diameter	"D" Max. Diameter @ 75°*			
8-5/8 (219 mm)	151023	7/8 (22 mm)	4-9/16 (115 mm)	9-1/8 (231 mm)	10-9/16 (268 mm)	70	450 psi (32 kg/cm ²)	3/8
9-5/8 (244 mm)	151023	1-3/8 (34 mm)	5-9/16 (128 mm)	10-1/8 (257 mm)	10-9/16 (268 mm)	70	450 psi (32 kg/cm ²)	
10-3/4 (273 mm)	151029	1-15/16 (49mm)	5-5/8 (142 mm)	11-1/4 (285 mm)	19-1/2 (495 mm)	60	450 psi (32 kg/cm ²)	
11-3/4 (298 mm)	151029	2-7/16 (61 mm)	61/8 (155 mm)	12-1/4 (311 mm)	19-1/2 (495 mm)	60	500 psi (35 kg/cm ²)	
13-3/8 (340 mm)	151029	3-1/4 (82 mm)	6-15/16 (176 mm)	13-1/8 (333 mm)	19-1/2 (495 mm)	60	600 psi (42 kg/cm ²)	

* See drawing on page 8.

Single Cut Operation Running Charts (Continued)

8-1/4" (210 mm) O.D. Pressure Pipe Cutter

Casing Pipe Size	Knife					Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
	Part No.	"A" Length*	"B" Radius*	"C" Diameter*	"D" Max. Diameter @ 75 °*			
9-5/8 (244 mm)	147008	7/8 (22 mm)	5 (127 mm)	10 (254 mm)	13-1/2 (343 mm)	70	450 psi (32 kg/cm ²)	3/8
10-3/4 (273 mm)	147021	1-1/2 (38 mm)	5-5/8 (143 mm)	11-1/4 (286 mm)	16-1/2 (419 mm)	70	450 psi (32 kg/cm ²)	
13-3/8 (340 mm)	147022	2-13/16 (71 mm)	6-15/16 (176 mm)	13-7/8 (352 mm)	23-1/4 (591 mm)	60	600 psi (42 kg/cm ²)	
16 (406 mm)	147022	4-1/8 (105 mm)	8-1/4 (210 mm)	16-1/2 (419 mm)	23-1/4 (591 mm)	60	600 psi (42 kg/cm ²)	
20 (508 mm)	147023	6-1/8 (156 mm)	10-1/4 (260 mm)	20-1/2 (521 mm)	39-1/2 (1003 mm)	50	750 psi (53 kg/cm ²)	
24 (610 mm)	147024	8-1/8 (206 mm)	12-1/4 (311 mm)	24-1/2 (622 mm)	50-1/4 (1276 mm)	40	850 psi (60 kg/cm ²)	
30 (762 mm)	147024	11-1/8 (283 mm)	15-1/4 (387 mm)	30-1/2 (775 mm)	50-1/4 (1276 mm)	30	950 psi (67 kg/cm ²)	
30 (762 mm)	147025	11-1/8 (283 mm)	15-1/4 (387 mm)	30-1/2 (775 mm)	60 (1524 mm)	30	950 psi (67 kg/cm ²)	
34 (864 mm)	147025	13-1/8 (333 mm)	17-1/4 (438 mm)	34-1/2 (876 mm)	60 (1524 mm)	25	950 psi (67 kg/cm ²)	
34 (864 mm)	147026	13-1/8 (333 mm)	17-1/4 (438 mm)	34-1/2 (876 mm)	64 (1626 mm)	25	950 psi (67 kg/cm ²)	
36 (914 mm)	147026	14-1/8 (359 mm)	18-1/4 (464 mm)	36-1/2 (927 mm)	64 (1626 mm)	20	950 psi (67 kg/cm ²)	

9-1/2" (241 mm) O.D. Pressure Pipe Cutter

Information available upon request.

11-3/4" (298 mm) O.D. Pressure Pipe Cutter

Casing or Pipe Size	Knife					Rotary Speed	Orifice Pressure Differential	Orifice I.D. Std.
	Part No.	"A" Length*	"B" Radius*	"C" Diameter*	"D" Max. Diameter @ 75 °*			
13-3/8 (340 mm)	147357	1-1/16 (27 mm)	6-15/16 (176 mm)	13-7/8 (352 mm)	18-3/4 (476 mm)	70	150 psi (11 kg/cm ²)	3/8
13-3/4 (349 mm)	147358	1-1/4 (32 mm)	7-1/8 (181 mm)	14-1/4 (362 mm)	21-1/2 (546 mm)	60	275 psi (19 kg/cm ²)	
16 (406 mm)	147358	2-3/8 (60 mm)	8-1/4 (210 mm)	16-1/2 (419 mm)	21-1/2 (546 mm)	60	275 psi (19 kg/cm ²)	
16 (406 mm)	147359	2-3/8 (60 mm)	8-1/4 (210 mm)	16-1/2 (449 mm)	29-1/4 (743 mm)	50	400 psi (28 kg/cm ²)	
18-5/8 (473 mm)	147359	3-11/16 (94 mm)	9-9/16 (243 mm)	19-1/8 (486 mm)	29-1/4 (743 mm)	50	400 psi (28 kg/cm ²)	
18-5/8 (473 mm)	147360	3-11/16 (94 mm)	9-9/16 (243 mm)	19-1/8 (486 mm)	42-3/4 (1086 mm)	45	400 psi (28 kg/cm ²)	
24 (610 mm)	147360	6-3/8 (162 mm)	12-1/4 (311 mm)	24-1/2 (622 mm)	42-3/4 (1086 mm)	40	500 psi (35 kg/cm ²)	
26 (660 mm)	147361	7-3/8 (187 mm)	13-1/4 (337 mm)	26-1/2 (673 mm)	54 (686 mm)	35	600 psi (42 kg/cm ²)	
30 (762 mm)	147361	9-3/8 (238 mm)	15-1/4 (387 mm)	30-1/2 (775 mm)	54 (686 mm)	30	600 psi (42 kg/cm ²)	
34 (864 mm)	147362	11-3/8 (289 mm)	17-1/4 (438 mm)	34-1/2 (876 mm)	64-1/2 (819 mm)	25	800 psi (56 kg/cm ²)	
36 (914 mm)	147362	12-3/8 (314 mm)	18-1/4 (464 mm)	36-1/2 (927 mm)	64-1/2 (819 mm)	25	800 psi (56 kg/cm ²)	

* See drawing on page 8.

Running Chart to Cut Multiple Sizes of Pipe

8-1/4" Pressure Pipe Cutter

	Pipe Size O.D. (inches)	Knife Length (inches)	Spacer Sub Length (inches)	Spacer Sub Length (inches)	Spacer Sub Total Length (inches)	Cutter Tip Raised (inches)
1st Run	9-5/8	4	40	31	71	0
2nd Run	10-3/4	5-1/2	40	29	68	1/2
3rd Run	13-3/8 to 16	9	40	24	64	1-1/2
4th Run	20	17-1/2	31	24	55	1/2
5th Run	24 to 30	23	31	15	46	3-1/2
6th Run	30 to 34	28	0	40	40	1
7th Run	34 to 36	30	24	11	35	3

11-3/4" Pressure Pipe Cutter

	Pipe Size O.D. (inches)	Knife Length (inches)	Spacer Sub Length (inches)	Spacer Sub Length (inches)	Spacer Sub Length (inches)	Spacer Sub Total Length (inches)	Cutter Tip Raised (inches)
1st Run	13-3/8 to 13-3/4	4-1/2	40	31	11	82	0
2nd Run	13-3/4 to 16	6-1/2	40	24	15	79	1
3rd Run	16-18 to 5/8	10-1/2	40	24	11	75	0
4th Run	18-5/8 to 24	17-1/2	40	15	11	66	2
5th Run	26 to 30	23	31	15	11	57	3-1/2
6th Run	34 to 36	30	0	31	15	46	4

Bowen Pressure Pipe Cutter — Specification Table

O.D. or Cutter – inches	3-1/4	3-5/8	5-9/16	7-3/8	8-1/4	9-1/2**	11-3/4
Size Connection (Box Up)	2-3/8 Reg.	2-3/8 I.F.	3-1/2 I.F.	—	*	—	*
Size Connection (Box Down)	2-3/8 Reg.	2-3/8 Reg.	3-12 Reg.	*	*	—	*
Size Pipe to Cut (O.D. of Pipe)	4	4-1/2 to 6-1/8	6-5/8 to 7-5/8	8-5/8 to 11-3/4	9-5/8 to 36	—	13-3/8 to 36
Complete Assembly	Part No. 150444	147483	147489	150959	147495***	—	147369

Replacement Parts

Body	Part No.	150445	147484	147490	151022	147496	—	147370
Knife (3 Req'd.)	Part No.	150446	80357	80717	151023	147008	—	147357
Knife Pin (3 Req'd.)	Part No.	80359	80359	80719	151024	147009	—	147371
Knife Pin Retainer Screw (3 Req'd.)	Part No.	23508	23508	13847	148526	148526	—	148256
Spring Sleeve	Part No.	—	147487	147493	—	147499	—	—
Spring	Part No.	150499	147488	147494	147500	147500	—	147384
Piston	Part No.	150450	147485	147491	151025	147497	—	147373
Piston O.D. Seal	Part No.	27-33	27-36	27-49	151026	147012	—	147374
Piston I.D. Seal	Part No.	27-25	27-25	27-25	568228	27-34	—	27-34
Piston Bushing	Part No.	80356	80356	80356	147013	147013	—	147013
Piston Bushing Retainer Ring	Part No.	21116	21116	21116	147014	147014	—	147014
Bit Jet Retainer	Part No.	80352	80352	80714	147015	147015	—	147377
Bit Jet Retainer Seal	Part No.	568117	568117	568117	27-24	27-24	—	27-24
Bit Jet	Part No.	150682	80453	80453	147016	147016	—	147016
Bit Jet Retainer Ring	Part No.	54131	54131	54131	33788	33788	—	33788
Bit Jet Retainer Stem	Part No.	80354	80354	80354	147017	147017	—	147017
Stop Spider	Part No.	150451	80353	80715	151027	145168	—	147381
Stop Spider Set Screw (3 Req'd.)	Part No.	23705	23706	23709	145165	145165	—	23384
Top Sub	Part No.	150452	80351	80713	151028	147018	—	147383
Top Sub Seal	Part No.	30-9	30-12	30-27	568359	27-65	—	27-74
Stop Spider Seal	Part No.	—	—	—	—	27-64	—	—

Optional

Top Sub (to Cut 5" O.D. Pipe)	Part No.	—	80566	—	—	—	—	—
Top Sub (to Cut 5-1/2" O.D. Pipe)	Part No.	—	80567	—	—	—	—	—
Top Sub (to Cut 7" O.D. Pipe)	Part No.	—	—	80720	—	—	—	—
Top Sub (to Cut 7-5/8" O.D. Pipe)	Part No.	—	—	80721	—	—	—	—
Complete Packing Set	Part No.	—	—	—	151030	147019	—	147390
O-Ring Packing Set	Part No.	150765	148102	148103	151031	147020	—	147391
Knife to Cut:								
7-5/8" to 9-5/8" O.D. Pipe	Part No.	—	—	81896	—	—	—	—
10-3/4" O.D. Pipe	Part No.	—	—	—	151029	147021	—	—
11-3/4" to 13-3/8 O.D. Pipe	Part No.	—	—	—	151029	—	—	—
13-3/8" to 16" O.D. Pipe	Part No.	—	—	—	—	147022	—	147358
16" to 18-5/8" O.D. Pipe	Part No.	—	—	—	—	—	—	147359
18" to 20" O.D. Pipe	Part No.	—	—	—	—	147023	—	—
18-5/8" to 24" O.D. Pipe	Part No.	—	—	—	—	—	—	147360
24" to 30" O.D. Pipe	Part No.	—	—	—	—	147024	—	—
26" to 30" O.D. Pipe	Part No.	—	—	—	—	—	—	147361
30" to 34" O.D. Pipe	Part No.	—	—	—	—	147025	—	—
34" to 36" O.D. Pipe	Part No.	—	—	—	—	147026	—	147362

* Blank connections

** Information available upon request

*** Not recommended for use in casing exceeding 24" O.D.

How to Order

Specify:

- (1) Size connection
- (2) O.D. of pipe
- (3) Length of knives (when making multiple cuts, please specify all knife lengths to be used)
- (4) Quantity and length of spacer subs (spacer subs used only on floating platform operations)

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* Denotes Manufacturing and Engineering facilities

Downhole Solutions
Drilling Solutions
Engineering and Project Management Solutions
Lifting and Handling Solutions
Production Solutions
Supply Chain Solutions
Tubular and Corrosion Control Solutions
Well Service and Completion Solutions